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AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A peptide characterized by Formula I

$Y\text{-}AA_1\text{-}AA_2\text{-}AA_3\text{-}AA_4\text{-}AA_5\text{-}AA_6\text{-}AA_7\text{-}AA_8\text{-}Z$ Formula I

wherein:

Y is attached to the amino-terminus of said peptide and is selected from the group consisting of a hydrogen atom, an acyl group (R—CO—), wherein R is a hydrophobic moiety, or an aroyl group (Ar—CO—), wherein Ar is an aryl group;

Each of AA_1 and AA_2 are independently selected from the group consisting of no residue, isoleucine (Ile), leucine (Leu), and related alpha-amino acids possessing hydrophobic side-chains;

AA_3 is selected from the group consisting of no residue, glycine (Gly), alanine (Ala) and proline (Pro);

AA_4 is selected from the group consisting of histidine (His), phenylalanine (Phe), tyrosine (Tyr), tryptophan (Trp) and related alpha-amino acids possessing hydrophobic side-chains;

AA_5 is selected from the group consisting of arginine (Arg), ornithine (Orn), lysine (Lys), citruline, 2-, 3-, and 4-pyridylalanine, and arginine surrogates;

AA_6 is selected from the group consisting of aspartic acid (Asp), asparagine (Asn), glutamic acid (Glu), glutamine (Gln), serine (Ser), 3-amino-5-phenylpentanoic acid and Phe;

AA_7 is selected from the group consisting of no residue, Tyr, Phe, and related alpha-amino acids possessing hydrophobic side-chains, aromatic amines, aliphatic amines and primary arylalkyl amines;
AA_8 is selected from the group consisting of no residue, Lys, Leu, Tyr, alpha-amino acids possessing hydrophobic side-chains, and aromatic and aliphatic amines;
Z is attached to the carboxy-terminus of said peptide and is selected from the group consisting of, a hydroxyl, NH_2, and aromatic and aliphatic amines; and
functional derivatives thereof.

2. (Original) The peptide of claim 1, wherein said acyl group in the definition of Y is selected from the group consisting of benzoyl, acetyl, tert-butyl acetyl, para-phenyl benzoyl, trifluoroacetyl, cyclohexylcarbonyl and phenylacetyl.

3. (Original) The peptide of claim 1, wherein said hydrophobic moiety in the definition of Y is selected from the group consisting of a substituted or non-substituted alkyl, a substituted or non-substituted cycloalkyl, a phenylmethyl, and a saturated or unsaturated hydrocarbon chain.

4. (Original) The peptide of claim 3, wherein said substituted or unsubstituted alkyl is a saturated hydrocarbon chain having from 1 to 18 C atoms.

5. (Original) The peptide of claim 3, wherein said substituted or unsubstituted alkyl is a saturated hydrocarbon chain having from 1 to 12 C atoms.

6. (Original) The peptide of claim 3, wherein said substituted or unsubstituted alkyl is a saturated hydrocarbon chain having from 1 to 6 C atoms.

7. (Original) The peptide of claim 3, wherein said substituted or unsubstituted alkyl is a saturated hydrocarbon chain having from 1 to 4 C atoms.

8. (Original) The peptide of claim 3, wherein said substituted or unsubstituted alkyl is a linear hydrocarbon chain.

9. (Original) The peptide of claim 3, wherein said substituted or unsubstituted alkyl is a branched hydrocarbon chain.

10. (Original) The peptide of claim 9, wherein said branched hydrocarbon chain has one or two branches.

11. (Original) The peptide of claim 9, wherein said branched hydrocarbon chain has one branch.

12. (Original) The peptide of claim 3, wherein said substituted or unsubstituted alkyl is an unsaturated hydrocarbon chain having 3 to 18 C atoms.

13. (Original) The peptide of claim 12, wherein said unsaturated hydrocarbon chain has at least one double bond and/or at least one triple bond.

14. (Original) The peptide of claim 12, wherein said unsaturated hydrocarbon chain has two double bonds.

15. (Original) The peptide of claim 12, wherein said unsaturated hydrocarbon chain has one double bond.

16. (Original) The peptide of claim 12, wherein said unsaturated hydrocarbon chain has one triple bond.

17. (Original) The peptide of claim 3, wherein said substituted alkyl is selected from the group consisting of a mono-, a di-, and a tri-substituted alkyl.

18. (Original) The peptide of claim 3, wherein said substituted alkyl is substituted with from 1 to 4 substituents.

19. (Original) The peptide of claim 18, wherein said substituent is selected from the group consisting of halo, haloalkyl, hydroxy, aryl, heterocyclyl and heteroaryl.

20. (Original) The peptide of claim 19, wherein said aryl is selected from the group consisting of phenyl, tolyl, alkyloxyphenyl, alkyloxycarbonylphenyl, and halophenyl.

21. (Original) The peptide of claim 3, wherein said substituted or unsubstituted cycloalkyl is a saturated ring of from 3 to 8 C atoms.

22. (Original) The peptide of claim 3, wherein said substituted or unsubstituted cycloalkyl is selected from the group consisting of cyclopentyl and cyclohexyl.

23. (Original) The peptide of claim 3, wherein said substituted cycloalkyl is selected from the group consisting of mono- and di-substituted cycloalkyl.

24. (Original) The peptide of claim 3, wherein said substituted cycloalkyl has substituents selected from the group consisting of halo, haloalkyl, hydroxy, aryl, heterocyclyl and heteroaryl.

25. (Original) The peptide of claim 24, wherein said aryl is selected from the group consisting of phenyl, tolyl, alkoxyphenyl, alkoxycarbonylphenyl and halophenyl.

26. (Original) The peptide of claim 3, wherein said saturated or unsaturated hydrocarbon chain is selected from the group consisting of a linear saturated or unsaturated alkyl group, alkenyl group, and branched saturated or unsaturated alkyl group.

27. (Original) The peptide of claim 26, wherein said linear saturated alkyl group has from 1 to 18 carbon atoms.

28. (Original) The peptide of claim 26, wherein said linear saturated alkyl group has from 1 to 12 carbon atoms.

29. (Original) The peptide of claim 26, wherein said linear saturated alkyl group has from 1 to 6 carbon atoms.

30. (Original) The peptide of claim 26, wherein said linear saturated alkyl group has from 1 to 4 carbon atoms.

31. (Original) The peptide of claim 3, wherein said alkenyl group has 3 to 8 C atoms.

32. (Original) The peptide of claim 26, wherein said branched saturated or unsaturated alkyl group has from 3 to 18 C atoms.

33. (Original) The peptide of claim 26, wherein said branched saturated or unsaturated alkyl has one or two branches.

34. (Original) The peptide of claim 26, wherein said branched saturated or unsaturated alkyl has one branch.

35. (Original) The peptide of claim 26, wherein said linear unsaturated alkyl or branched unsaturated alkyl has at least one double bond and/or at least one triple bond.

36. (Previously Amended) The peptide of claim 26, wherein said linear unsaturated alkyl or branched unsaturated alkyl has two double bonds.

37. (Original) The peptide of claim 26, wherein said linear unsaturated alkyl or branched unsaturated alkyl has one double bond.

38. (Original) The peptide of claim 26, wherein said linear unsaturated alkyl or branched unsaturated alkyl has one triple bond.

39. (Original) The peptide of claim 1, wherein in the definition of AA_4, said hydrophobic side-chain is selected from the group consisting of cyclohexylalanine and heterocyclic side-chains.

40. (Original) The peptide of claim 39, wherein said heterocyclic side-chain is a pyridylalanine group.

41. (Original) The peptide of claim 1, wherein in the definition of AA_7, AA_8 and Z, said aromatic amine is selected from the group consisting of phenylmethylamine, phenylethylamine, phenylproplyamine, and an amine comprising a saturated or unsaturated hydrocarbon chain.

42. (Original) The peptide of claim 1, wherein in the definition of AA_7, AA_8 and Z, said aliphatic amine is selected from the group consisting of amines comprising a saturated or unsaturated hydrocarbon chain.

43. (Original) The peptide of claim 41, wherein said amine comprising a saturated or unsaturated hydrocarbon chain is a primary amine.

44. (Original) The peptide of claim 41, wherein said saturated or unsaturated hydrocarbon chain is selected from the group consisting of a linear saturated or unsaturated alkyl group, an alkenyl group, and a branched saturated or unsaturated alkyl group.

45. (Original) The peptide of claim 44, wherein said linear saturated alkyl group has from 1 to 18 carbon atoms and said linear unsaturated alkyl group has 3 to 18 C atoms.

46. (Original) The peptide of claim 44, wherein said linear saturated alkyl group has from 1 to 12 carbon atoms and said linear unsaturated alkyl group has 3 to 12 C atoms.

47. (Original) The peptide of claim 44, wherein said linear saturated alkyl group has from 1 to 6 carbon atoms and said linear unsaturated alkyl group has 3 to 6 C atoms.

48. (Original) The peptide of claim 44, wherein said linear saturated alkyl group has from 1 to 4 carbon atoms and said linear unsaturated alkyl group has 3 to 4 C atoms.

49. (Original) The peptide of claim 44, wherein said branched saturated or unsaturated alkyl group has from 3 to 18 C atoms.

50. (Original) The peptide of claim 44, wherein said branched saturated or unsaturated alkyl has one or two branches.

51. (Original) The peptide of claim 44, wherein said branched saturated or unsaturated alkyl has one branch.

52. (Original) The peptide of claim 44, wherein said linear unsaturated alkyl or branched unsaturated alkyl has at least one double bond and/or at least one triple bond.

53. (Original) The peptide of claim 44, wherein said linear unsaturated alkyl or branched unsaturated alkyl has two double bonds.

54. (Original) The peptide of claim 44, wherein said linear unsaturated alkyl or branched unsaturated alkyl has one double bond.

55. (Original) The peptide of claim 44, wherein said linear unsaturated alkyl or branched unsaturated alkyl has one triple bond.

56. (Original) The peptide of claim 1, wherein in the definitions of AA_1 to AA_8, said amino acids are D- or L-amino acids.

57. (Original) The peptide of claim 1, wherein in the definition of AA_7, AA_8 and Z, said aromatic amine is a primary aromatic amine.

58. (Original) The peptide of claim 1, wherein in the definition of AA_7, said primary arylalkylamine has a ring of from 6 to 10 C atoms.

59. (Original) The peptide of claim 58, wherein in said primary arylalkylamine, said aryl is selected from the group consisting of phenyl, tolyl, alkoxyphenyl, alkoxycarbonylphenyl and halophenyl.

60. (Original) The peptide of claim 57, wherein said primary aromatic amine has a ring of from 6 to 10 C atoms.

61. (Original) The peptide of claim 1, wherein in the definition of AA_7, AA_8 and Z said aliphatic amine is a primary aliphatic amine.

62. (Original) The peptide of claim 1, wherein said primary aliphatic amine has from 1 to 18 C atoms.

63. (Previously Amended) The peptide of claim 1, wherein said peptide is selected from the group consisting of

Sequence (N to C)	SEQ ID. No.
Ilghrdyk	1
Ghrdyk	2
Ilgardyk	3
Ilghadyk	4
ilgHrayk	6
ilghrDyk	8
Ilahrdyk	9
ilAhrdyk	10
Ilghrdyw	11
Ilgfrdyk	13
Ilghreyk	14
Ilghkdyk	15
Ilghrnyk	16
Ilghrdy	17
Ilphrdyk	18
Ilhrdyk	19
Ilghqdyk	20
Ilghrsyk	21
ilghrdy-amide	22
ilghrdyk-amide	23
Ilgwrdyk	24
Ilgyrdyk	25
ilg-(cha)-rdyk	26
ilg(cha)qdyk	27
ilg(cha)rnyk	28
Kydrhgll	29
ilgh-(3PA)-qdyk	30
ilgh-(4PA)-dyk	31
ilgh(cit)dyk	32

and functional derivatives thereof.

64. (Original) The peptide of claim 63, wherein said peptide and functional derivatives thereof substantially inhibit FP receptor.

65. (Previously Amended) The peptide of claim 64, wherein said FP receptor is from a mammal.

66. (Original) The peptide of claim 65, wherein said mammal is a human.

67. (Original) The peptide of claim 64, wherein inhibition of FP receptor is measured in a porcine retinal microvascular contraction assay, wherein a contraction caused by prostaglandin $F_{2\alpha}$ in the presence of the peptide is at least 50% of the contraction produced by the prostaglandin $F_{2\alpha}$ in the absence of the peptide.

68. (previously canceled)

69. (Previously Amended) A pharmaceutical composition comprising a therapeutically effective amount of at least one peptide of claim 1 in association with a pharmaceutically acceptable carrier.

70. (Original) The pharmaceutical composition of claim 69, wherein said therapeutically effective amount of said at least one peptide is 0.1-100 mg/Kg body weight.

71. (Previously Amended) A method of inhibiting FP receptor, comprising administering to an individual an inhibitory amount of the pharmaceutical composition of claim 69.

72. – 73. (previously canceled)

74. (withdrawn) A method of arresting preterm labor comprising administering to an individual a therapeutically effective amount of the pharmaceutical composition of claim 69.

75. (withdrawn) A method of treating dysmenorrhea comprising administering to an individual a therapeutically effective amount of the pharmaceutical composition of claim 69.

76. - 148. (previously canceled)

149. (Previously added) The peptide of claim 42 wherein said saturated or unsaturated hydrocarbon chain is selected from the group consisting of a linear saturated or unsaturated alkyl group, an alkenyl group, and a branched saturated or unsaturated alkyl group.

150. (New) A peptide of claim 1 wherein said peptide is ilgh(cit)dyk (SEQ ID NO. 32).